

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of claims:

Claim 1 (currently amended): A system for detecting a screening-test error, the system comprising:

a measurement device that measures at least one performance parameter related to at least one screening-test task performed by a human subject; and

a computational device, in communication with the measurement device, that receives the at least one measured performance parameter, calculates at least one performance statistical quantity characterizing the measured performance parameter, and compares the at least one performance statistical quantity to at least one reference statistical quantity associated with an error-free screening test.

Claim 2 (original): A system according to claim 1, further comprising a display device that displays the extent to which the at least one performance statistical quantity differs from the at least one reference statistical quantity.

Claim 3 (original): A system for detecting errors in balance related screening tests, the system comprising:

a force-plate for measuring a quantity related to a stability factor of a balance task performed in trials by a subject under a plurality of distinct sensory conditions; and

a computation device in communication with the force-plate, the computational device (i) receiving the quantity related to the stability factor for each trial, (ii) determining a rank order for the quantities, each quantity for each trial being associated with a rank, and (iii) determining if any of the ranks associated with a given one of the trials has fallen outside a reference range associated with the given trial performed under error-free conditions.

Claim 4 (original): A system according to claim 3, further comprising a display device in communication with the computational device for indicating an instance wherein any of the ranks associated with a given one of the trials has fallen outside a reference range associated with the given trial.

Claim 5 (currently amended): A method for detecting a screening-test error, the method comprising:

measuring at least one performance parameter related to at least one screening-test task performed by a human subject; and

calculating at least one performance statistical quantity characterizing the measured performance parameter; and

comparing the at least one performance statistical quantity to at least one reference statistical quantity associated with an error-free screening test.

Claim 6 (original): A method according to claim 5, wherein the statistical quantity represents a value associated with an average.

Claim 7 (original): A method according to claim 5, wherein the statistical quantity represents a value associated with a standard deviation.

Claim 8 (original): A method according to claim 5, wherein the statistical quantity represents a value associated with a standard error.

Claim 9 (original): A method according to claim 5, wherein the statistical quantity represents a value associated with a power spectrum.

Claim 10 (original): A method according to claim 5, wherein the statistical quantity represents a value associated with a root mean square.

Claim 11 (original): A method according to claim 5, wherein the statistical quantity represents a value associated with a frequency histogram.

Claim 12 (original): A method according to claim 5, wherein:

- (i) the screening-test task is a balance task;
- (ii) the at least one performance parameter is sway deviation;
- (iii) the at least one performance statistical quantity corresponds to a moving window root mean square value for velocity of the sway deviation; and
- (iv) comparing the at least one performance statistical quantity to the at least one reference statistical quantity includes determining whether the moving window root mean square value deviates from a constant value by a predetermined threshold value.

Claim 13 (original): A method according to claim 5 wherein:

- (i) the screening-test task is a balance task;
- (ii) the at least one performance parameter is vertical force applied to a force plate;

(iii) the at least one performance statistical quantity corresponds to a moving window average value for total vertical force applied to the force plate; and

(iv) comparing the at least one performance statistical quantity to the at least one reference statistical quantity includes determining whether the moving window average value deviates from a constant value by a predetermined threshold value.

Claim 14 (original): A method according to claim 5, wherein:

(i) the screening-test task is a balance task;

(ii) the at least one performance parameter is vertical force applied to a force plate;

(iii) the at least one performance statistical quantity corresponds to an average of a mathematical derivative of the total vertical force applied to the force plate; and

(iv) comparing the at least one performance statistical quantity to the at least one reference statistical quantity includes determining whether the average deviates from zero by a predetermined threshold value.

Claim 15 (original): A method according to claim 5, wherein:

(i) the screening-test task is a balance task;

(ii) the at least one performance parameter is horizontal force applied to a force plate;

(iii) the at least one performance statistical quantity corresponds to an average of a mathematical derivative of the total horizontal force applied to the force plate; and

(iv) comparing the at least one performance statistical quantity to the at least one reference statistical quantity includes determining whether the average deviates from zero by a predetermined threshold value.

Claim 16 (original): A method according to claim 5, further comprising displaying the extent to which the at least one performance statistical quantity differs from the at least one reference statistical quantity on a display device.

Claim 17 (currently amended): A method for detecting errors in balance related screening tests, the method comprising:

measuring a quantity related to a stability factor of a balance task performed in trials by a human subject under a plurality of distinct sensory conditions;

obtaining thereby the quantity related to the stability factor for each trial;

determining a rank order for the quantities, each quantity for each trial being associated with a rank; and

determining if any of the ranks associated with a given one of the trials has fallen outside a reference range associated with the given trial performed under error-free conditions.

Claim 18 (original): A method according to claim 17, further comprising displaying a number corresponding to the number of times a performance of the balance task by the subject has fallen outside the reference range.

Claim 19 (original): A method according to claim 17, wherein measuring the quantity related to a stability factor includes following a modified CTSIB protocol.

Claim 20 (original): A method according to claim 17, wherein determining a rank order for the performance of the plurality of distinct tasks includes determining a rank order according to the level of difficulty of the balance tasks.

Claim 21 (currently amended): A method for detecting a screening test error in an individual trial of a balance task during which sway deviation is measured, the method comprising:

determining a quantity corresponding to a moving window root mean square value for velocity of the sway deviation associated with a balance task performed by a human subject, the window being short in relation to the duration of the trial but long in relation to the duration of a typical deviation in sway velocity; and

entering an alarm state when the quantity exceeds a threshold value.

Claim 22 (currently amended): A method for detecting a screening test error due to malfunctions of at least one vertical force sensing device, the method comprising:

determining a quantity corresponding to a moving window average value for the total vertical force measured by the device during performance of a screening test task performed by a human subject, the window being long in relation to the duration of expected spontaneous fluctuations in the total vertical force; and

entering an alarm state when the quantity deviates from a constant valued by a predetermined threshold value.

Claim 23 (original): A method for detecting a screening test error due to malfunctions of at least one vertical force sensing device, the method comprising:

calculating an average of a mathematical derivative for the total vertical force measured by the device during performance of a screening test task performed by a human subject to determine the rate of change of the total vertical force;

determining a quantity corresponding to an average rate of change of the total vertical force over a predetermined period of time; and

entering an alarm state when the average deviates from zero by a predetermined threshold value.

Claim 24 (original): A method for detecting a screening test error due to malfunctions of at least one horizontal force sensing device, the method comprising:

calculating an average of a mathematical derivative for the total horizontal force measured by the device during performance of a screening test task performed by a human subject to determine the rate of change of the total horizontal force;

determining a quantity corresponding to an average rate of change of the total horizontal force over a predetermined period of time; and

entering an alarm state when the average deviates from zero by a predetermined threshold value.

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